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PROPOSED
CONVERSION OF FAR LATHE BARN
AT
HILL HOUSE FARM
GRINDLETON

STRUCTURAL APPRAISAL

S.J. BIALECKI LIMITED

SR
21/10/14

ASSESSMENT

The scope of this Structural Appraisal is to offer opinion to the structural integrity of an existing agricultural building presently derelict , prior to consideration of conversion to a Camping Barn.

This report it to be read in conjunction with S J Bialecki Limited drawings No 5006,7 & 8.

The structure (barn) under consideration is located 400mm north west of Hill House Farm at the south east corner of a pasture land field and next to a small water course. Hill House Farm is approximately 0.75K west of Sawley and approximately 0.75K north east of Grindleton.

The barn is 'L' shaped under a dual pitched roof with the main four bay body of the building being wider along the front facing north east with covered wagon cart entrance.

A water course meanders past the south west side of the structure approximately 8.00m distant.

There are two dry stone walls along the north east side and post and rail fence along the south east side forming a paddock enclosure with the water course.

The land within the paddock falls away from the structure south easterly.

The structural inspection undertaken was not intrusive of the physical elements and restricted to a visual inspection with supporting photographs survey relating to super structure.

DESCRIPTION

The barn was constructed around the turn of the nineteenth century (1800).

The structure (barn) which was originally constructed in two stages, because of the sloping nature of the land.

Refer to sketch 001 illustrating stage work

First stage construction comprising sub-structure and lower perimeter walls in a solid form to a level plane in preparation for principle super structure providing a "Setting Out" base

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The level plane height 150mm above ground level to the north west gable and 750mm above ground level to the south east gable with a 650, average thickness.

The higher walls are built out of rubble sandstone in two skins with smaller stones infill to the cavity , which is typical construction for this type of building and period

Principle corners are constructed out of random sized dressed sandstone quoins.

NORTH WEST ELEVATION

This gable incorporates a high level 'Forking Hole' slightly off centre to the ridge with chamfered dressed sandstone head and built up section jambs , no cill.

In all probability this opening is not original

The gable also incorporates several breather or putlogs of no significant pattern

NORTH EAST ELEVATION

This elevation has an extended roof to a lower level covering a wagon door entrance with dressed sandstone quoins and a feature arch in exceptionally good condition.

The wagon door entrance retains original cobble stone forming a floor which has settled over the years and become uneven.

The wagon door is centrally to this particular elevation

To the right hand side (north west) inner face of the wagon door entrance incorporates a door with timber lintel . The vertical reveals to the door would indicate the masonry opening is not original

To the left elevation of the wagon door there are two narrow breather and two putlogs at a higher level.

To the right of the wagon door there is a square mucking hole that serves a small shippon with dressed sandstone surrounds in good condition

The remaining section of this elevation (set back) commands several putlogs and is the lowest level of all the elevations.

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SOUTH EAST ELEVATION

This elevation has an extended roof verge sloping north east providing an extended gable width with varying gutter levels

There is an entrance door providing access to a lower level shippon which is off centre of the ridge but central of the gable corners.

The masonry opening has sandstone surrounds in particular dressed sandstone head and jambs built up out of several pieces and most probably not an original opening

To the left side of the door is a narrow breather opening with several higher square breathers or putlogs.

At the apex point off centre of the ridge there is a larger 'Owl' hole.

The majority of these holes have small proportionate heads and cills.

SOUTH WEST ELEVATIONS

This elevation is the rear of the building with a single doorway serving the main body of the barn with original sandstone surrounds . The jambs built up in three pieces with the head all in good condition . The cill being trodden on is rounded and worn.

There are two narrow breathers to the right of the door which have been blocked off with several higher or putlogs equidistant both vertically and horizontally.

ROOF

The roof comprises three king post trusses at third points which have been constructed by pit-sawing or riving which was the mode of construction in those days. The joints are pegged with carpenters numbers visible. There are three rows of purlins down each slope which have been similarly pit sawn and pegged . There are flat rift sawn rafters that overlap on the purlins supporting a stone flag roof cover

The whole structure is original in its entirety

INTERNAL LAYOUT

The whole roof is exposed in open plan. The lower quarter section of the barn is a shippon with hay loft above at the south east end

The shippon is formed out of oak framed pegged boskins for nine cows with upper beams with wide boards forming the hay loft floor , all original in their entirety.

The principle barn floor is soiled and raised and would originally have a stone flag, which is subject to further site investigation

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STRUCTURAL CONDITIONS

WALLS

Despite their age and historic use the walls are in exceptional good condition free from typical bulges, settlement cracks or weather beaten spalling sandstone elements

The lime mortared rubble stone joints are original weather beaten which is expected for their age.

ROOF

The timber roof construction , similarly, despite its age and exposure appears to be in good condition.

ROOF COVER

The stone flags appear in reasonable condition despite their age with very little lamination failure and fracture , however the roof cover is dilapidated

INTERNAL

The timber shippon construction with hay loft are severely decayed and unsafe.

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STRUCTURAL PROPOSALS

The conversion works will preserve and enhance the principle structural elements.

The intended use under Building Control does not warrant insulation. For the sake of energy conservation we propose the use of insulation to principle elements including perimeter walls, roof and ground floor

WALLS

The perimeter walls will be lined with concrete blocks, secured to existing walls with frame ties built on suitable concrete strip foundations providing stability to existing walls. The concrete blocks will be lined with insulated plaster board.

A single window opening shall be introduced to the south west elevation to match existing material elements and design

Existing mortar to the stonework shall be raked back and repointed with sand – lime mortar flush pointed to English Heritage standards .

A reclaimed dressed sandstone window cill to complete the surrounds to the north – west window to blend and match.

A reclaimed dressed sandstone door to replace existing to south west masonry opening to blend and match

Equipment store timber door head to be replaced with reclaimed dressed sandstone.

ROOF

The existing stone flags (grey slate) shall be reused and reclaimed flags to match existing in the make up of relaying.

A specialist ‘Timber Treatment’ company shall be commissioned to inspect the “Roof Structure” provide a report with recommendations and remedial works to preserve and enhance the future integrity of the structure including visible impact treatment.

Insulation shall be placed between the existing rafters and relayed stone flag cover.

Conservation type velux roof lights shall be used which a black colour with non-reflective glass providing a sleek streamline window installed deeper in the roof structure meaning that less of the window protrudes above the roof line.

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WINDOW FRAMES AND DOORS

All window frames and doors shall be out of glazed rustic oak

INTERNAL ALTERATIONS

SHIPPON AND HAY LOFT

As previously mentioned the framework is decayed with significant rot and worm infestation resulting in collapse and very little structural; stability to preserve and enhance

Therefore all timber except the roof shall be dismantled and removed.

GROUND FLOOR SEPARATING WALLS


The ground floor separating walls out of concrete block work on suitable concrete foundations , coupled with the perimeter lining wall shall support a first floor timber suspended floor.

GROUND FLOOR

Existing floor levels shall be reduced to designed formation with a new floor out of compacted hardcore stone , damp course, insulation and concrete floor with replacement of stone flags if available

RAINWATER GOODS

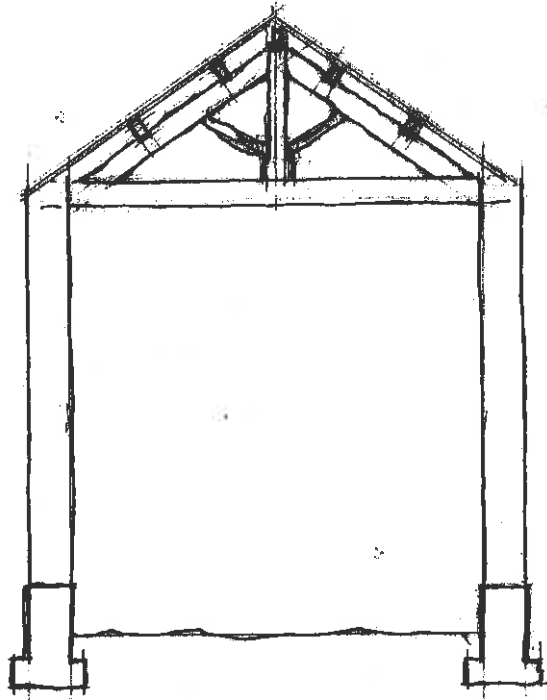
All rainwater goods shall be out of moulded cast aluminium the gutters shall be fixed with stirrup – brackets.

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CONVERSION SEQUENCE OF OPERATIONS

- 1 Remove all decayed and infested timber components
- 2 Reduce floor levels down to design formation
- 3 |Remove stone flags roof cover and store to one side for reuse
- 4 Form new window opening
- 5 Replace dressed sandstone masonry opening members as described
- 6 Construct perimeter lining walls and ground floor separating walls
- 7 Treatment – remedial works to existing roof structure as necessary
- 8 Replace roof cover with existing and replacement flags as necessary
- 9 New concrete ground floors
- 10 Window frames and doors
- 11 Rainwater goods
- 12 Suspended first floor with staircase
- 13 First fix services
- 14 Finishes
- 15 Second fix services
- 16 Repoint external stonework

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SKETCH 001